CLAIMS

1. - 26. (Canceled)

27. (Currently Amended) A method of treating an aqueous effluent containing organic matter in a single chamber reactor having an immerse membrane filtration unit and a bed of catalyst material disposed in the reactor, the method comprising:

a. directing the effluent into the reactor;

b. injecting an oxidizing gas into the reactor in a direction generally ~~counter to~~ consistent with the direction of flow of the effluent;

c. directing the effluent through the bed of catalyst material and wherein the catalyst material promotes the oxidation reaction of organic material in the effluent, or promotes the absorption of organic material by the bed of catalyst material; and

d. directing at least a portion of the effluent to and through the immerse membrane filtration unit which filters the effluent and produces a filtered effluent; and

e. directing the filtered effluent from the reactor.

28. (Previously Presented) The method of claim 27 wherein the bed of catalyst material comprises a solid mineral material having the capacity for absorbing organic materials, and wherein the method includes directing the effluent in the reactor through the solid mineral material and utilizing the solid mineral material to absorb organic materials from the effluent.

29. (Previously Presented) The method of claim 28 wherein the solid mineral material is doped with metallic substances.

30. (Previously Presented) The method of claim 29 wherein the solid mineral material assumes the form of a fluidized bed.

31. (Previously Presented) The method of claim 27 including selecting the size of particles forming the catalyst material such that the size of the individual particles is of a grating less than 100μm.

32. (Previously Presented) The method of claim 31 wherein the particle size of the catalyst material has a size grating between about 10μm and 40μm.

33. (Previously Presented) The method of claim 27 wherein the catalyst material is selected from the group comprising alumina, titanium, coal, activated carbon, polymetallic oxides, and derivatives thereof.

34. (Previously Presented) The method of claim 27 wherein directing the effluent through the membrane filtration unit comprises directing the effluent through one or more microfiltration membranes.

35. (Previously Presented) The method of claim 27 wherein directing the effluent through the membrane filtration unit comprises directing the effluent through one or more ultrafiltration membranes.

36. (Previously Presented) The method of claim 27 wherein directing the effluent through the membrane filtration unit comprises directing the effluent through one or more nanofiltration membranes.

37. (Previously Presented) The method of claim 27 wherein directing the effluent through the membrane filtration unit includes directing the effluent through a mineral filtration unit.

38. (Previously Presented) The method of claim 27 wherein directing the effluent through the membrane filtration unit includes directing the effluent through an organic filtration unit.

39. (Previously Presented) The method of claim 27 wherein the catalyst material forms on the surface of the membrane filtration unit and at least some of the effluent is directed through the catalyst material into the membrane filtration unit.

40. (Previously Presented) The method of claim 27 wherein the oxidizing gas comprises at least one oxidant taken from the group including air, ozone, ozoned air, nitrogen oxide, oxygen, and derivatives thereof.

41. (Previously Presented) The method of claim 27 including adding H_2O_2 into the reactor.

42. (Previously Presented) The method of claim 27 including providing a recirculating line outside of the reactor and recirculating at least a portion of the effluent such that recirculated effluent is directed back through the catalyst material.

43. (Previously Presented) The method of claim 27 including a gas recirculating loop and the method includes recirculating at least some of the oxidizing gas injected into the reactor.

44. (Previously Presented) The method of claim 27 wherein the reactor assumes the form of a column and wherein the effluent is not subjected to mechanical stirring within the reactor.

45. (Previously Presented) The method of claim 27 including contacting the effluent with the catalyst material for a period of about 5 minutes to about 3 hours.

46. (Previously Presented) The method of claim 27 including contacting the effluent with the catalyst material for a period of about 30 minutes to about 60 minutes.

47. (Previously Presented) The method of claim 27 including providing a suction source disposed external to the reactor and operatively connecting the suction source to the membrane filtration unit for inducing filtered effluent from the filtration membrane unit and from the reactor.

48. (Previously Presented) The method of claim 47 wherein the suction includes a pressure of less than 1 bar.

49. (Previously Presented) The method of claim 47 wherein the suction includes a pressure is between 0.1 bars and 0.8 bars.

50. (Currently Amended) A system for treating an aqueous effluent containing organic matter comprising:

a. a single chamber reactor having an inlet through which the aqueous effluent passes into the reactor;

b. an oxidizing gas outlet disposed in the reactor for directing an oxidizing gas into the reactor;

c. an immersed membrane filtration device disposed in the reactor;

d. an area defined between the membrane filtration device and the oxidizing gas outlet for a bed of catalyst material; and

e. wherein the oxidation gas outlet is arranged in the reactor such that the oxidation gas outlet directs an oxidizing gas therefrom in a direction generally ~~counter to~~ consistent with the flow of the aqueous effluent through the reactor.

51. (Previously Presented) The system of claim 50 including an oxidation gas recirculation loop extending exteriorly of the reactor for recirculating an oxidizing gas.

52. (Previously Presented) The system of claim 51 including an effluent recirculation loop extending exteriorly of the reactor for recirculating effluent passing through the reactor.

53. (Previously Presented) The system of claim 50 wherein the reactor assumes the form of a column wherein the oxidation gas outlet is disposed in a bottom portion of the reactor.

54. (Previously Presented) The system of claim 50 including a bed of catalyst material contained within the reactor.

55. (Previously Presented) The system of claim 54 wherein the catalyst material comprises a solid mineral material having the capacity for absorbing organic materials.

56. (Previously Presented) The system of claim 50 including a fluidized bed that includes a bed of catalyst material.

57. (Previously Presented) The system of claim 56 wherein the bed of catalyst material includes particles and wherein the size of the particles is of a grating less than 100 μm.